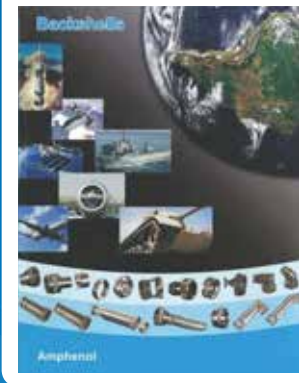


## Backshells

For LJT, RNJ, RNJ LP, TV-CTV, SC39 and SJT Connectors  
For MIL-DTL-38999 Series I, II, III, EN3645 and VG96912 Connectors



For **AS85049 Backshells**, please consult our complete catalog "Amphenol Backshell"



# ABOUT AMPHENOL SOCAPEX



## Proven excellence in interconnect solutions

Since **1947**, Amphenol Socapex has prescribed, designed and manufactured reliable and innovative interconnection solutions for **harsh environments**, specializing in standard and customized electrical and fiber optic connectors, contacts, accessories and cabling solutions. Located in the **Mont Blanc** region of France and Pune in India, Amphenol Socapex has a presence in over 100 countries around the world. Amphenol Socapex is part of the international **Amphenol Corporation**.



**800+** employees



Net Sales 2018: **72,5 M€**  
68% Export - 32% France



Two facilities :  
**Thyez** (France), **Pune** (India)

OUR HISTORY

**1947**



- Socapex creation in Suresnes, France
- 1<sup>st</sup> radio connector

**1956-57**



- Manufacturing unit in Cluses (74), France
- Thomson-CSF becomes primary shareholder

**Early 1960's**



- 1<sup>st</sup> board level connectors: HE8
- 1<sup>st</sup> "licence Bendix" manufactured connectors
- SL Series launch

**1973**



- New factory 13 000 m<sup>2</sup> in Thyez (74) France with 250 people

**1975**



- Production of 38999 connectors

**2014-2017**



- New Cable Assembly workshop
- New Contact Manufacturing workshop

**Today and tomorrow | New technologies**



Miniaturization  
 High-speed signals  
 Rugged Ethernet  
 Fiber optics  
 Power  
 Miniaturization  
 ROHS solutions  
 Power  
 Rugged Ethernet  
 Fiber optics  
 ROHS solutions  
 Advanced Materials (composite)  
 Power  
 Miniaturization  
 ROHS solutions

# INTERNATIONAL EXPERTISE



## Our expertise has no boundaries

### Integrated Production in France & India

- **24 000 m<sup>2</sup>** manufacturing capacity on 2 sites
- Design centers in **France** and **India**
- State-of-the-art manufacturing technology



## Our markets



### Military

Communication Systems - Radios - C4ISR /  
Ground vehicles - Vetronics / Marine / Missiles



### Aviation

Commercial & military / Avionics /  
Engines / Landing gear / Actuators

**1986**

**Amphenol**  
Socapex

- Amphenol becomes primary shareholder

**1995-96**



- Expanded Beam connector CTOS launch
- Headquarters transferred to Thyez

**2004**



- RJ Field launch, "Award Electronica"

**2005**



- Opening of manufacturing site in Pune, India

**2010's**



- LuxBeam™ and HDAS launch

## Today and tomorrow | Sustainable development







**Respect for nature and the environment**  
Optimization of natural resources  
Recycling  
Waste Management  
Goodwill  
Optimization of natural resources  
Respect for nature and the environment  
Waste Management  
Recycling

# PRODUCING FASTER, SMALLER, STRONGER CONNECTORS...



## Technologies & innovation

Technological Center	High-Speed Expertise	Materials Expertise	Eco-responsibility
			
<p><b>Engineering Laboratory for product testing and qualification, product expertise and metrology</b></p> <ul style="list-style-type: none"> <li>- Mechanical and electrical skills</li> <li>- RF and fiber optics expertise</li> </ul>	<p><b>Strong expertise in high-speed signals</b></p> <ul style="list-style-type: none"> <li>- 3D EM simulation software &amp; EM models</li> <li>- Time Domain and frequency domain (VNA 20GHz, TDR and eye diagram)</li> </ul>	<p><b>Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products</b></p> <ul style="list-style-type: none"> <li>- 3D CAD mechanical software, simulation &amp; analysis</li> <li>- Disruptive metal alloys, additive manufacturing</li> </ul>	<p><b>Sustainable environment approach, with pro-active management of regulations (REACH / RoHS / Conflict minerals...)</b></p> <ul style="list-style-type: none"> <li>- New materials development, plating, and suitable processes</li> <li>- Recycling and rational resources consumption</li> </ul>

## Our workshops

Our workshops located in France & India provide consistent quality adapted to your volume requirements.

- Molding** : Solid expertise in thermoplastic elastomer and thermoset molding
- Machining** : Manufacturing of cylindrical shells from 10 to 90 mm in diameter and rectangular shells
- Screw Machining** : Cylindrical production parts up to 10 mm in diameter
- Plating** : Plating with cadmium, nickel, electroless nickel, silver, black zinc nickel, gold
- Assembly** : Sub-assembly, harnessing, cabling, bonding and marking for small & large volumes


## Our certifications



Certified Management System    Certified Management System    Certified Management System    Certified Management System

Product certifications : MIL-DTL38999, EN3645, EN3155, VG

## Our memberships



Member of CMG (Connecting Manufacturing Group) Consortium

# DELIVERING GREAT CUSTOMER EXPERIENCE



► We have a strong reputation for helping customers solve their toughest challenges. This approach of serving your needs is ingrained in our company – from our sales team to our product development engineers.





## A partner you can trust

Customer Proximity	Design Expertise	Quality Commitment	On Time Delivery Performance	Compliance manager

## Buy our solutions

You can access our solutions through our global network of sales offices or through our distributors.

### Field Sales Team :

-  12 in France
-  15 in Europe
-  100+ in North America and rest of the world.
-  5 Business Development Managers supporting local sales force Europe, North America and the rest of the world

-  **Technical Support & Multilingual Customer Service :**
- 15 people

### Worldwide Distribution Network :

Including qualified distributors (QPL approved) for assembling : MIL-DTL-38999, PT/451/VG95328 & Fiber Optics connectors





# NOTES

A series of horizontal dotted lines for taking notes, spanning the width of the page.

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# GENERAL CHARACTERISTICS

## Main features

- **Shell material**

- Aluminium alloy
- Marine bronze
- For composite, please consult us

- **Finish**

- Olive drab cadmium plating
- Electroless nickel plating
- Green zinc cobalt plating
- Black zinc nickel plating
- For others, please consult us

- **9 shell sizes per model**

- **Straight or right angled versions**

- **Working temperature**

- From – 65°C to + 175°C with olive drab cadmium plating, green zinc cobalt plating and black zinc nickel plating
- From – 65°C to + 200°C with electroless nickel plating

*For specific backshells for marine applications and 217 backshells, please consult us.*



## Description

You will find hereafter Amphenol Socapex backshells for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308), RNJ LP, TV-CTV (MIL-DTL-38999 Series III), SC39 and SJT (VG96912) connectors. These rear accessories enhance the performance capabilities of the connectors for both general duty and severe environment applications.

Different technologies are used in order to ensure the following functions:

- **EMI shielding**
- **cable retention**
- **sealing**

This large choice of rear accessories provides you with the right solution for your connector/backshell interconnection.

### BACKSHELLS SERIES SERVES VARIOUS MARKETS, INCLUDING:



Navy



Military Aerospace



Ground vehicle



C4ISR



Industrial

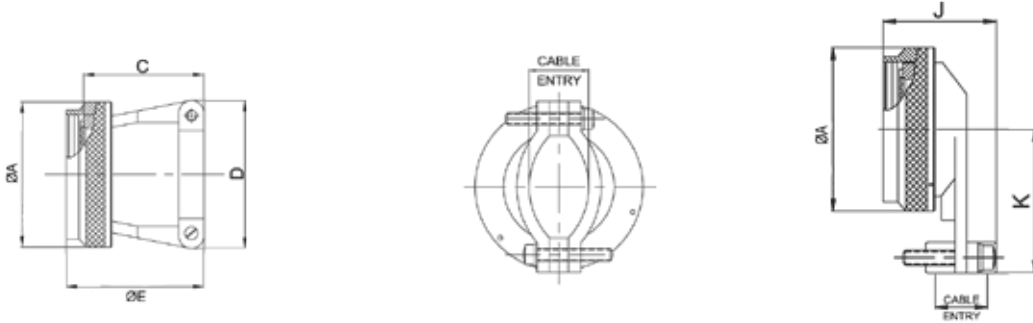
# STRAIN RELIEFS

These backshells ensure a mechanical retention of the cable.



## LJT/TV strain reliefs

**M85049/49-2 strain relief and M85049/47** (90° angled versions) suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.  
**M85049/38 strain relief and M85049/39** (90° angled versions) suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.



Size	LJT	TV	Ø A max mm (in)	C max mm (in)	D max mm (in)	E max mm (in)	Cable Entry mm (in)		J mm (in)		K mm (in)
	Thread for M85049/49-2 UNEF-2B	Thread for M85049/38 Metric					min	max	for M85049/47	for M85049/39	
09	.4375-28	M12 x 1.0 - 6H	19.05 (0.75)	23.11 (0.91)	21.59 (0.85)	27.94 (1.10)	2.49 (0.10)	5.94 (0.23)	35.05 (1.38)	33.27 (1.31)	25.40 (1.00)
11	.5625-24	M15 x 1.0 - 6H	21.59 (0.85)	23.11 (0.91)	22.86 (0.90)	27.94 (1.10)	3.89 (0.15)	5.94 (0.23)	35.05 (1.38)	33.27 (1.31)	27.94 (1.10)
13	.6875-24	M18 x 1.0 - 6H	25.40 (1.00)	25.65 (1.01)	27.94 (1.10)	30.48 (1.20)	4.83 (0.19)	8.33 (0.33)	37.08 (1.46)	38.35 (1.51)	27.94 (1.10)
15	.8125-20	M22 x 1.0 - 6H	27.94 (1.10)	26.92 (1.06)	29.21 (1.15)	31.75 (1.25)	6.60 (0.26)	11.61 (0.46)	41.4 (1.63)	39.37 (1.55)	31.75 (1.25)
17	.9375-20	M25 x 1.0 - 6H	31.75 (1.25)	29.46 (1.16)	33.02 (1.30)	34.44 (1.36)	7.19 (0.28)	15.60 (0.61)	45.72 (1.80)	43.43 (1.71)	33.02 (1.30)
19	1.0625-18	M28 x 1.0 - 6H	35.56 (1.40)	35.81 (1.41)	38.10 (1.50)	40.64 (1.60)	8.26 (0.33)	16.10 (0.63)	46.23 (1.82)	45.97 (1.81)	34.29 (1.35)
21	1.1875-18	M31 x 1.0 - 6H	38.10 (1.50)	38.35 (1.51)	40.64 (1.60)	43.21 (1.70)	8.71 (0.34)	17.73 (0.70)	48.26 (1.90)	49.53 (1.95)	40.64 (1.60)
23	1.3125-18	M34 x 1.0 - 6H	41.91 (1.65)	42.16 (1.66)	43.18 (1.70)	46.99 (1.85)	9.68 (0.38)	20.90 (0.82)	51.82 (2.04)	53.34 (2.10)	44.45 (1.75)
25	1.4375-18	M37 x 1.0 - 6H	44.45 (1.75)	44.70 (1.76)	45.72 (1.80)	49.56 (1.95)	10.62 (0.42)	21.67 (0.85)	54.61 (2.15)	56.13 (2.21)	46.99 (1.85)

## How to order M85049/49-2/38/39

SAE-85049 designation - Backshells for LJT (MIL-DTL-38999 Series I/HE308), JT (MIL-DTL-38999 Series II) and TV/CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	M85049/	49-2	12	W
Type of strain relief	49-2: for LJT (MIL-DTL-38999 Series I / HE308), JT (MIL-DTL-38999 Series II) and RNJ (HE308) connectors 38: for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors 39: 90° right angled for TV (MIL-DTL-38999 Series III) connectors			
Size of backshell	08-10-12-14-16-18-20-22-24 (remove 1 from your connector size) for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors 09-11-13-15-17-19-21-23-25 (same as connector size) for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors			
Finish	W: olive-drab cadmium plating N: electroless nickel plating ✓			

## How to order M85049/47

SAE-85049 designation – 90° angled backshells for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308)

Series	M85049/	47	W	12
Type of strain relief	47: 90° right angled for LJT (MIL-DTL-38999 Series I/HE308) connectors			
Finish	W: olive drab cadmium plating N: electroless nickel plating ✓			
Backshell size	08-10-12-14-16-18-20-22-24 for LJT (MIL-DTL-38999 series I / HE308) and RNJ (HE308) connectors: remove 1 to your connector size			

✓ : RoHS compliant

# STRAIN RELIEFS

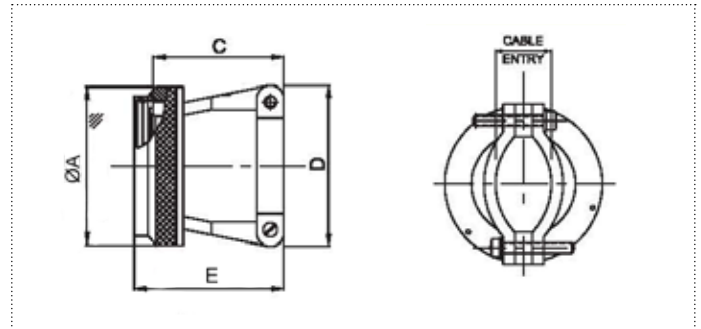
## How to order

### SAE-85049 designation - Backshells for LJT (MIL-DTL-38999 Series I/HE308)

Series	M85049/	47	W	12
Type of strain relief	47: 90° right angled for LJT (MIL-DTL-38999 Series I / HE308) connectors			
Finish	W: olive-drab cadmium plating N: electroless nickel plating ✓			
Size of backshell	08-10-12-14-16-18-20-22-24 (remove 1 from your connector size) for LJT (MIL-DTL-38999 Series I / HE308)			

## SJT strain reliefs

SJT strain reliefs suitable for SJT (VG 96912) connectors.



Size*	ØA max mm (in)	C max mm (in)	D max mm (in)	E max mm (in)	Cable entry mm (in)		Thread for SJT00 & SJT06	Thread for SJT07
					min	max		
08	19.05 (0.750)	23.11 (0.910)	21.59 (0.850)	27.94 (1.100)	2.49 (0.098)	5.94 (0.234)	.4375-28	.5625-24
10	21.59 (0.850)	23.11 (0.910)	22.86 (0.900)	27.94 (1.100)	3.89 (0.153)	5.94 (0.234)	.5625-24	.6875-24
12	25.40 (1.000)	25.65 (1.010)	27.94 (1.100)	30.48 (1.200)	4.83 (0.190)	8.33 (0.328)	.6875-24	.8125-20
14	27.94 (1.100)	26.92 (1.060)	29.21 (1.150)	31.75 (1.250)	6.60 (0.260)	11.61 (0.457)	.8125-20	.9375-20
16	31.75 (1.250)	29.46 (1.160)	33.02 (1.300)	34.44 (1.356)	7.19 (0.283)	15.60 (0.614)	.9375-20	1.0625-18
18	35.56 (1.400)	35.81 (1.410)	38.10 (1.500)	40.64 (1.600)	8.26 (0.325)	16.10 (0.634)	1.0625-18	1.1875-18
20	38.10 (1.500)	38.35 (1.510)	40.64 (1.600)	43.21 (1.701)	8.71 (0.343)	17.73 (0.698)	1.1875-18	1.3125-18
22	41.91 (1.650)	42.16 (1.660)	43.18 (1.700)	46.99 (1.850)	9.68 (0.381)	20.90 (0.823)	1.3125-18	1.4375-18
24	44.45 (1.750)	44.70 (1.760)	45.72 (1.800)	49.56 (1.951)	10.62 (0.418)	21.67 (0.853)	1.4375-18	1.4375-18

\*For SJT00 & SJT06, 08-10-12-14-16-18-20-22-24

For SJT07, add 2 to your connectors size i.e. for 8 size connector use size 10 backshell

## How to order

### Amphenol designation - Backshells for SJT (VG96912)

Series	BS1	SR	M	12	99	9	X	W
Type of backshell	SR: straight cable clamp with spin coupling							
Connector group	M: SJT							
Size of backshell	08-10-12-14-16-18-20-22-24 (same as connector size)							
Entry size	99: standard							
Length	9: standard							
Constant	X							
Finish	W: olive-drab cadmium plating N: electroless nickel plating ✓							

✓: RoHS compliant

# BACKSHELLS FOR SHIELDING

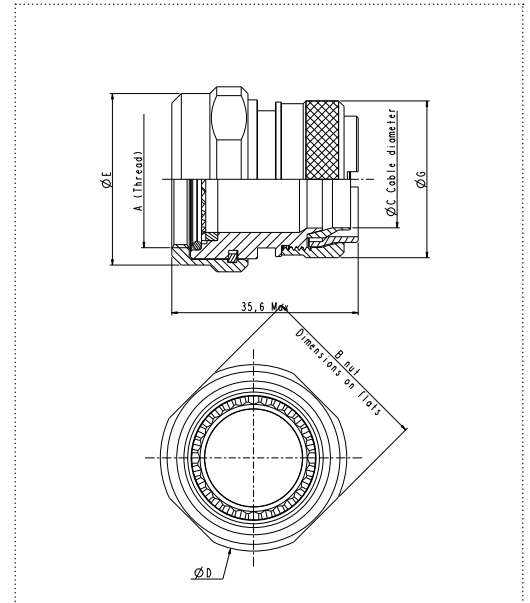
NSA and SA backsells ensure the shielding by clamping the braid with a screwing system. The free inner ring avoids twisting of the braid during screwing.



## LJT NSA & TV NSA

**LJT NSA (HE308-13)** suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308).  
**TV NSA** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

Size	LJT	TV	B max mm (in)	Ø C max mm (in)	Ø D max mm (in)	Ø E max mm (in)	Ø G max mm (in)
	A Thread UNEF-2B	A Thread Metric					
09	4375-28	M12 x 1.0 - 6H	17 (0.669)	6.9 (0.272)	19.1 (0.752)	15.2 (0.598)	16.5 (0.650)
11	5625-24	M15 x 1.0 - 6H	21 (0.827)	9.6 (0.378)	23.1 (0.909)	18.2 (0.717)	19.4 (0.764)
13	6875-24	M18 x 1.0 - 6H	26 (1.024)	12.7 (0.500)	28.1 (1.106)	21.2 (0.835)	22.6 (0.890)
15	8125-20	M22 x 1.0 - 6H	29 (1.142)	14.8 (0.583)	31.1 (1.224)	25.1 (0.988)	25.8 (1.016)
17	9375-20	M25 x 1.0 - 6H	32 (1.260)	17.9 (0.705)	34.1 (1.343)	28.1 (1.106)	29.0 (1.142)
19	1.0625-18	M28 x 1.0 - 6H	36 (1.417)	19.9 (0.784)	38.1 (1.500)	31.1 (1.224)	32.0 (1.260)
21	1.1875-18	M31 x 1.0 - 6H	39 (1.535)	23.1 (0.909)	41.1 (1.618)	34.1 (1.343)	35.2 (1.386)
23	1.3125-18	M34 x 1.0 - 6H	42 (1.654)	26.2 (1.032)	44.1 (1.736)	36.9 (1.453)	38.4 (1.512)
25	1.4375-18	M37 x 1.0 - 6H	45 (1.772)	28.8 (1.134)	49.1 (1.933)	39.9 (1.571)	41.5 (1.634)



## How to order

**Amphenol designation - Backshells for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308)**

Series	LJT	NSA	11	014
<b>Type of backshell</b>	NSA: screened clamping braid backshell accepting heat shrink moulded piece			
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 for LJT connectors: same as connector size			
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating ✓ 024: green zinc cobalt plating ✓ 033K: black zinc nickel plating ✓			

**HE 308 military designation - Backshells for HE308 (LJT / MIL-DTL-38999 Series I / RNJ) connectors**

Series	HE308	13	15	7	M
<b>Type of backshell</b>	13: screened clamping braid backshell heat shrink moulded piece				
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)				
<b>Finish</b>	07: olive-drab cadmium plating 06: electroless nickel plating ✓				
<b>Military standard</b>					

## How to order

**Amphenol designation – Backshells for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors**

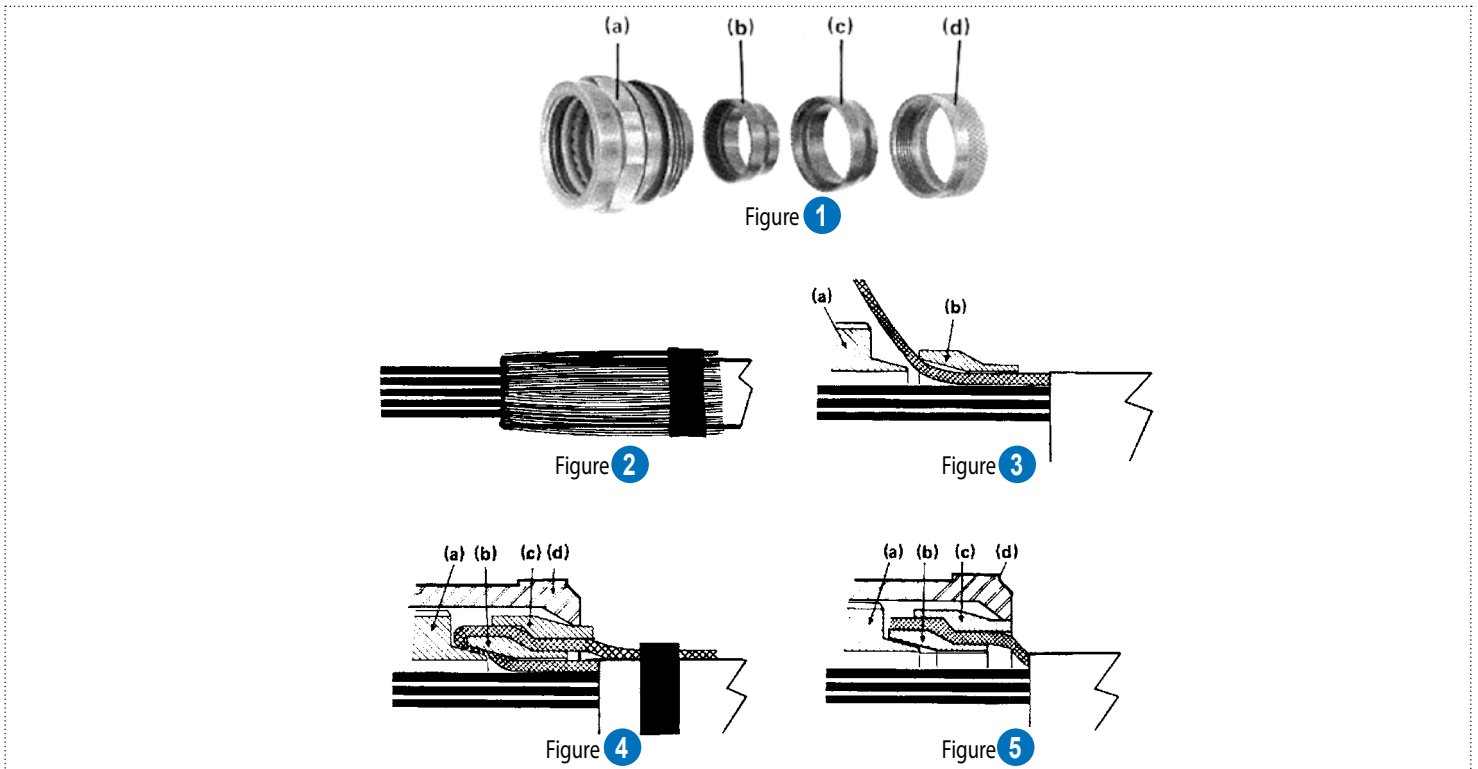
Series	TV	NSA	11	014
<b>Type of backshell</b>	NSA: screened clamping braid backshell accepting heat shrink moulded piece			
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)			
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating ✓ 024: green zinc cobalt plating ✓ 033K: black zinc nickel plating ✓			

✓: RoHS compliant

# BACKSHELLS FOR SHIELDING

## Assembly instructions for NSA backsells

- 1 Prepare the cable for termination process and slide onto the cable the items in the order shown on figure 1.
- 2 Screw the backshell at the rear of the connector. The best performance in time of the system « connector + rear accessory » consists in applying the torque value to screw then to unscrew, to apply the torque value to screw a second time, then to unscrew and finally to screw the torque value a third time.
- 3 Fold back the braid on the outer jacket and fix it (figure 2)
- 4 Install the braid as shown on figures 3 and 4: Release the braid and cover the backshell (a) and the connector's shell. Slide the first ring (b) over the braid. Fold back the braid on the ring (b) and slide the second ring (c) over the braid and the first ring (b). Screw the last ring (d) at the rear of the backshell. If necessary, fix the extra braid on the outer jacket of the cable. If this installation (double folding of the braid) is not possible, refer to figure 5: Slide the first ring (b). Release the braid and cover the backshell (a) and the connector's shell. Cut the braid as shown. Slide the second ring (c) over the braid and the first ring (b). Screw the last ring at the rear of the backshell.
- 5 Install the heat-shrink moulded piece.



# BAND BACKSHELLS FOR SHIELDING

These band backsells provide a full 360° shield termination. They are available with different cabling chamber lengths and exit diameters. The use of replaceable bands facilitates future maintenance or reparability. Sealing is ensured by straight or right angled heat shrink moulded piece at the rear of backshell.

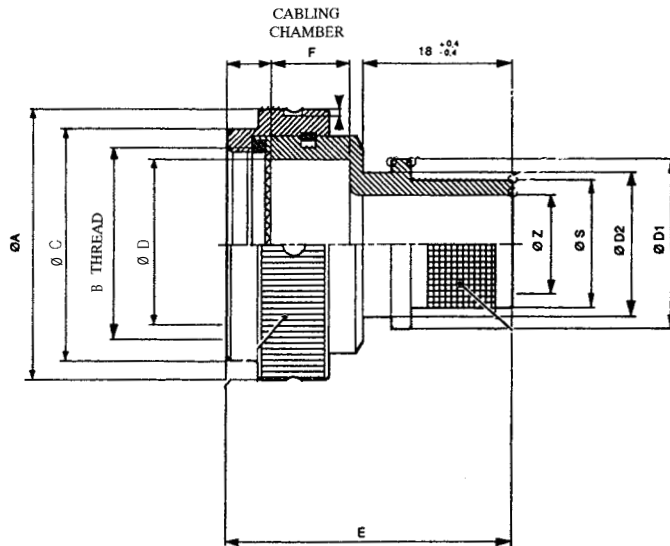
## HE308-35 and TV35 backsells

**HE308-35** suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308) connectors.

**TV35** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

**TVB35** suitable for TV bronze connectors.

These straight band backsells provide a full 360° shield termination with a quick, easy and cost effective cabling process. For straight or right angled heat shrink moulded pieces, please refer to page 29.



Size	HE308-35				TV35/TVB35			
	Ø A max mm (in)	B Thread UNEF-2B	Ø C mm (in)	Ø D mm (in)	Ø A max mm (in)	B Thread Metric	Ø C mm (in)	Ø D mm (in)
09	21.40 (0.843)	0.4375-28	15.20 (0.598)	7.80 (0.307)	24.30 (0.957)	M12 x 1.0-6H	18.00 (0.709)	7.80 (0.307)
11	24.30 (0.957)	0.5625-24	18.40 (0.724)	10.80 (0.425)	27.40 (1.079)	M15 x 1.0-6H	21.00 (0.827)	10.99 (0.433)
13	27.40 (1.079)	0.6875-24	21.60 (0.850)	13.10 (0.516)	31.80 (1.252)	M18 x 1.0-6H	25.00 (0.984)	13.80 (0.543)
15	31.80 (1.252)	0.8125-20	24.80 (0.976)	16.30 (0.642)	35.00 (1.378)	M22 x 1.0-6H	28.00 (1.102)	16.30 (0.642)
17	35.00 (1.378)	0.9375-20	28.00 (1.102)	19.50 (0.768)	38.10 (1.500)	M25 x 1.0-6H	30.80 (1.213)	20.10 (0.791)
19	38.10 (1.500)	1.0625-18	31.00 (1.220)	21.70 (0.854)	41.20 (1.622)	M28 x 1.0-6H	34.10 (1.343)	22.93 (0.903)
21	41.20 (1.622)	1.1875-18	34.20 (1.347)	24.90 (0.980)	44.30 (1.744)	M31 x 1.0-6H	36.90 (1.453)	26.00 (1.024)
23	44.30 (1.744)	1.3125-18	37.40 (1.472)	28.10 (1.106)	47.20 (1.858)	M34 x 1.0-6H	39.80 (1.567)	29.28 (1.153)
25	47.20 (1.858)	1.4375-18	40.60 (1.599)	31.20 (1.228)	50.00 (1.969)	M37 x 1.0-6H	43.00 (1.693)	32.45 (1.278)

# BAND BACKSHELLS FOR SHIELDING

Size	E max mm	Cabling chamber length F <sup>+0.1</sup> mm	Z rear side diameter coding										
			06	08	10	12	14	16	20	24	28	32	36
09	36	10		o	x	o	x	x					
	36	10		x	o	o	o	x	x				
11	41	15	x	x	x	x							
	46	20				x							
	56	30						x	x				
	66	40				x	x						
13	36	10		x	x	o	o	o	x				
	56	30				△		o					
15	36	10		x	x	o	o	x	o	x			
	41	15		x	x	x	x	x					
	56	30							o				
17	36	10				o	o	o	o	o			
	41	20					x	x					
	51	25				o	x						
	56	30						x		o			
19	36	10		x				o	o	o	x		
	56	30						x		o			
21	36	10					x	x	o	x	o	x	
	46	20					x		△	x			
	51	25					x						
	56	30							△		o		
23	36	10						x		o	x	o	
	56	30								o		o	
25	36	10						x		o		o	
	56	30								o		o	
<b>Z rear side diameter</b>			<b>06</b>	<b>08</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>28</b>	<b>32</b>	<b>36</b>
Ø Z			4.8 (0.189)	6.30 (0.248)	7.90 (0.313)	9.40 (0.370)	11.00 (0.433)	12.60 (0.496)	15.80 (0.622)	19.00 (0.748)	22.10 (0.870)	25.30 (0.996)	28.60 (1.126)
Ø S min/max			7.80/7.9 (0.307/0.311)	9.40/9.50 (0.370/0.374)	11.1/11.2 (0.437/0.440)	12.60/12.70 (0.496/0.500)	14.10/14.30 (0.555/0.563)	15.70/15.90 (0.618/0.626)	18.90/19.10 (0.744/0.752)	22.00/22.20 (0.866/0.874)	25.20/25.40 (0.992/1)	28.40/28.60 (1.118/1.126)	31.50/31.80 (1.240/1.252)
Ø D1 ±0.1			12.40 (0.488)	14.00 (0.551)	17.10 (0.673)	17.10 (0.673)	18.70 (0.736)	20.30 (0.799)	23.50 (0.925)	26.70 (1.051)	29.80 (1.173)	33.00 (1.299)	36.20 (1.425)
Ø D2 ±0.1			9.80 (0.386)	11.40 (0.449)	14.50 (0.571)	14.50 (0.571)	16.10 (0.634)	17.70 (0.697)	20.90 (0.823)	23.10 (0.909)	26.20 (1.032)	29.40 (1.158)	32.60 (1.284)

x  
HE308-35

o  
HE308-35 & TV35/TVB35

△  
TV35/TVB35

## How to order

### HE 308 military designation - Backshells for HE 308 (LJT/ MIL-DTL-38999 Series I / RNJ) connectors

Series	HE308	-35	-11	-10	-12	-7	M
Type of backshell	35: band backshell accepting heat shrink moulded piece						
Size of backshell	09-11-13-15-17-19-21-23-25 (same as connector size)						
Cabling chamber length	10-15-20-25-30-40						
Refer above - dimension F							
Rear side diameter	06-08-10-12-14-16-20-24-28-32-36						
Refer above - dimension Z							
Finish	7: olive-drab cadmium plating 6: electroless nickel plating ✓ 033K: black zinc nickel plating ✓						
Military standard (only for olive-drab cadmium and electroless nickel versions)							

### Amphenol designation – Backshells for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	TV	35	11	10	12	014
Type of backshell	35: aluminium straight band backshell accepting heat shrink moulded piece B35: bronze straight band backshell accepting heat shrink moulded piece ✓					
Size of backshell	09-11-13-15-17-19-21-23-25 (same as connector size)					
Cabling chamber length	10-20-25-30					
Refer above - dimension F						
Rear side diameter	06-08-10-12-14-16-20-24-28-32-36					
Refer above - dimension Z						
Finish	014: olive-drab cadmium plating 023: electroless nickel plating ✓ 024: green zinc cobalt plating ✓ 033K: black zinc nickel plating ✓ Blank for bronze version ✓					

✓: RoHS compliant

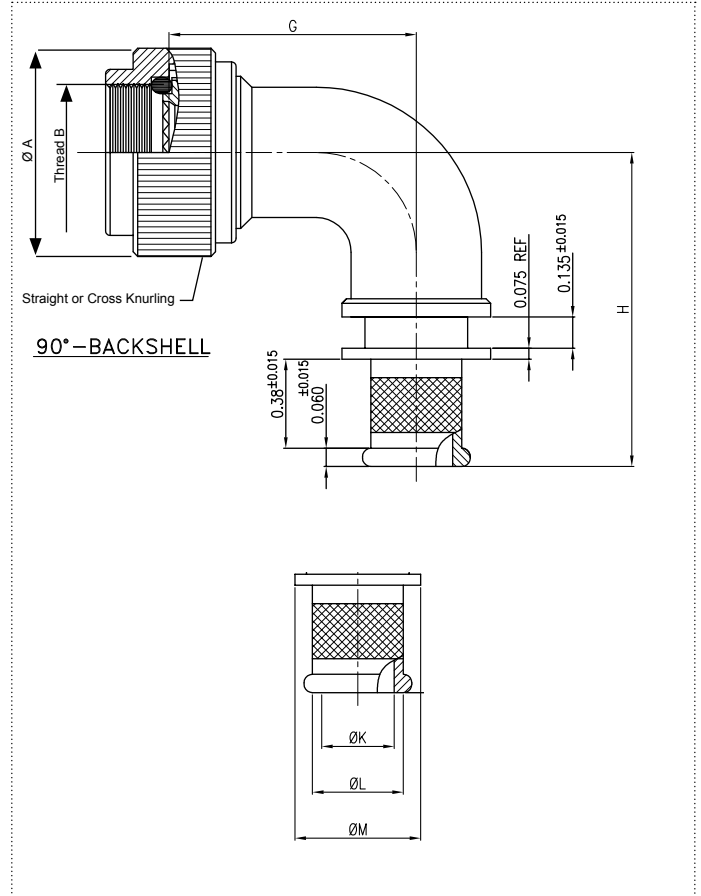
# BAND BACKSHELLS FOR SHIELDING

## SBC Backshells

**LJT SBC** suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.

**TV SBC** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

These right angled band backshells provide a full 360° shield termination with a quick, easy and cost effective cabling process. For right angled heat shrink moulded pieces, please refer to page 29.



Size	LJT SBC only		TV SBC only	
	Ø A max (in)	B Thread UNEF-2B	Ø A max (in)	B Thread Metric
09	19.10 (0.752)	0.4375-28	19.10 (0.752)	M12 x 1.0-6H
11	21.59 (0.850)	0.5625-24	21.59 (0.850)	M15 x 1.0-6H
13	25.40 (1.000)	0.6875-24	25.40 (1.000)	M18 x 1.0-6H
15	29.18 (1.149)	0.8125-20	29.18 (1.149)	M22 x 1.0-6H
17	31.78 (1.251)	0.9375-20	31.78 (1.251)	M25 x 1.0-6H
19	35.59 (1.401)	1.0625-18	35.59 (1.401)	M28 x 1.0-6H
21	39.29 (1.547)	1.1875-18	39.29 (1.547)	M31 x 1.0-6H
23	41.88 (1.649)	1.3125-18	41.88 (1.649)	M34 x 1.0-6H
25	44.48 (1.751)	1.4375-18	44.48 (1.751)	M37 x 1.0-6H

Size	G max (in)	K rear side diameter		H max (in)	Ø L ± 0.015" (in)	Ø M ± 0.015" (in)
		Coding 1/32 of Inch	Dimension (in)			
09	28.58 (1.125)	10	7.92 (0.312)	33.91 (1.335)	11.13 (0.438)	12.70 (0.500)
11	31.75 (1.250)	14	11.13 (0.438)	37.08 (1.460)	14.27 (0.562)	15.85 (0.624)
13	34.93 (1.375)	16	12.70 (0.500)	40.26 (1.585)	15.88 (0.625)	17.45 (0.687)
15	38.10 (1.500)	20	15.88 (0.625)	43.43 (1.710)	19.05 (0.75)	20.62 (0.812)
17	41.28 (1.625)	24	19.05 (0.750)	46.61 (1.835)	22.23 (0.875)	23.80 (0.937)
19	44.45 (1.750)	24	19.05 (0.750)	49.78 (1.960)	22.23 (0.875)	23.80 (0.937)
21	47.63 (1.875)	28	22.23 (0.875)	42.96 (2.085)	25.40 (1.000)	26.97 (1.062)
23	50.80 (2.000)	32	25.40 (1.000)	56.13 (2.210)	28.58 (1.125)	30.15 (1.187)
25	53.98 (2.125)	36	28.58 (1.125)	59.31 (2.335)	31.75 (1.250)	33.32 (1.312)

## How to order

Amphenol designation – Backshells for LJT (LJT/ MIL-DTL-38999 Series I / HE308/ RNJ) connectors

Series	LJT	SBC	11	14	014
Type of backshell	SBC: aluminium right angled band backshell accepting heat shrink moulded piece				
Size of backshell	09-11-13-15-17-19-21-23-25 (same as connector size)				
Rear side diameter	10-14-16-20-24-28-32-36				
Refer above - dimension Z					
Finish	014: olive-drab cadmium plating 023: electroless nickel plating ✓				

✓: RoHS compliant



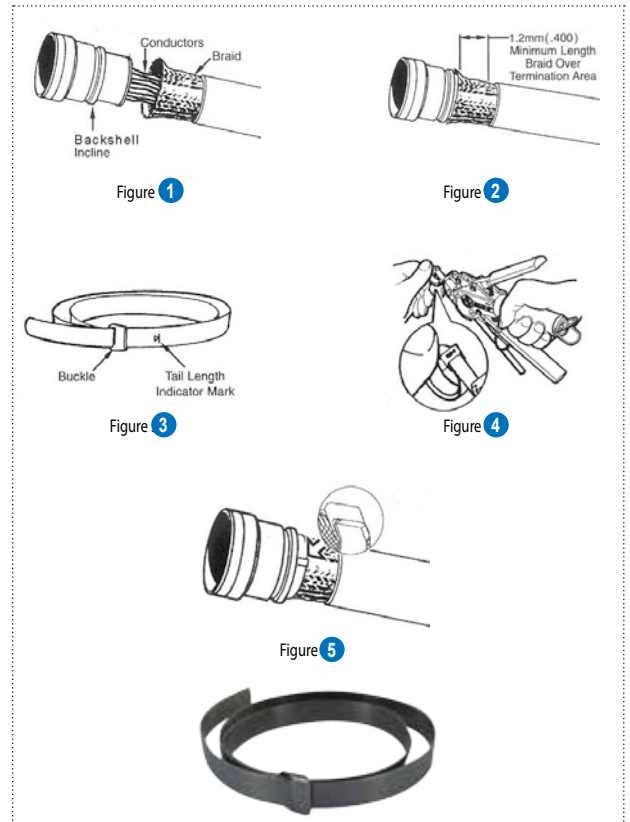
# BAND BACKSHELLS FOR SHIELDING

Amphenol designation – Backshells for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	TV	SBC	11	14	014
<b>Type of backshell</b>	SBC: aluminium right angled band backshell accepting heat shrink moulded piece				
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)				
<b>Rear side diameter</b>	10-14-16-20-24-28-32-36				
Refer previous page - dimension K					
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating ✓ 033K: black zinc nickel plating ✓				

## Assembly instructions for HE308-35, TV35 and SBC backshells

- 1 Prepare the cable for termination process (figure 1).
- 2 Screw the backshell at the rear of the connector.
- 3 Push the braid over the backshell to the incline point. Milk the braid as required to remove the slack and insure a snug fit around the shield termination area (figure 2).
- 4 Prepare the band: Roll the band through the buckle slot twice (the band must be double-coiled). Pull on the band until the mark is within approximately 6.4 mm (.250 in) of the buckle slot (figure 3). The band may be tightened further if desired.
- 5 Squeeze the gripper release lever of the banding tool and insert the band into the front end opening of the tool as shown on figure 4 (the circular portion of looped band must always face downward).
- 6 Aligning the band and the tool with the shield termination area, squeeze the black pull-up handle repeatedly using short strokes until it locks against the tool body (this indicates the band is compressed to the tool precalibrated tension).
- 7 Complete the clamping process by squeezing the grey cut-off handle.
- 8 Remove the excess band from the tool.
- 9 Inspect shield termination (figure 5). If the alignment of the band and the shield is unsatisfactory, tension on the band can be relaxed by pushing on the slotted release lever on the top of the tool. Make adjustments as necessary and squeeze again the black pull-up handle.



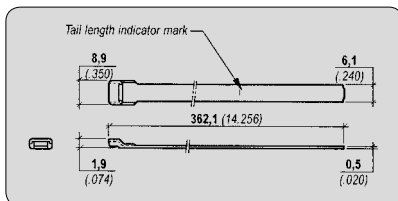
## Tooling and accessories

### Coupling tool

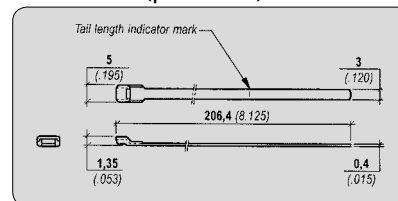
Coupling wrench for HE308-35 and TV(B) 35 backshells: **116.50** (Facom p/n)

### Clamping bands

Standard band: **072952**



Micro band (precoiled): **895693**



### Hand banding tools

Banding tool for standard band: **809952**

Banding tool for micro band: **809985**

Caution: Tools and bands should never be lubricated

✓: RoHS compliant

# BAND BACKSHELLS FOR SHIELDING

## M85049 band backshells

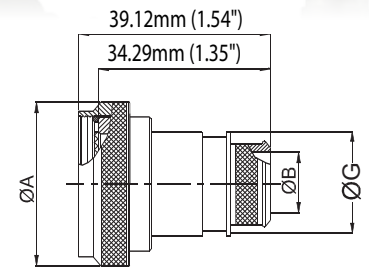
**M85049/85 and M85049/87** suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308) connectors.

**M85049/88 and M85049/90** suitable for TV/CTV (MIL-DTL-38999 Series III), SC39 and RNJLP connectors.

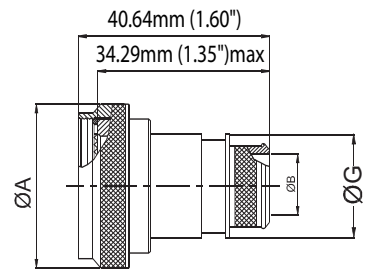
These straight band backshells provide a full 360° shield termination with a quick, easy and cost effective cabling process. For straight or right angled heat shrink moulded pieces, please refer to page 29.



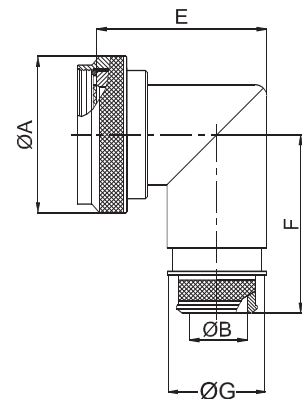
Size	Entry Size		Ø B <sup>0</sup> <sub>-0.5</sub> mm (in)	Ø A max mm (in)	E max mm (in)	F max mm (in)		Ø G max mm (in)
	Coding					LJT	TV	
	for /85 only	for /88/87/90						
09	01	02	N/A	21.82 (0.859)	34.93 (1.375)	35.99 (1.417)	35.99 (1.417)	N/A
	02	03	6.60 (0.260)					14.22 (0.560)
11	01	02	N/A	25.04 (0.986)	36.50 (1.437)	37.59 (1.480)	37.59 (1.480)	N/A
	02	03	8.13 (0.320)					16.00 (0.630)
13	01	02	8.13 (0.320)	29.36 (1.156)	39.67 (1.562)	39.45 (1.553)	39.45 (1.553)	16.00 (0.630)
	02	03	11.43 (0.450)					19.05 (0.750)
15	01	02	11.43 (0.450)	32.54 (1.281)	42.85 (1.687)	41.00 (1.614)	41.00 (1.614)	19.05 (0.750)
	02	03	14.48 (0.570)					22.61 (0.890)
17	01	02	12.95 (0.510)	35.71 (1.406)	44.45 (1.750)	42.62 (1.678)	42.62 (1.678)	20.83 (0.820)
	02	03	16.26 (0.640)					24.13 (0.950)
19	01	02	16.26 (0.640)	38.51 (1.516)	47.63 (1.875)	44.02 (1.733)	45.03 (1.773)	24.13 (0.950)
	02	03	19.30 (0.760)					27.18 (1.070)
21	01	02	16.26 (0.640)	41.68 (1.641)	49.23 (1.938)	45.62 (1.796)	45.62 (1.796)	24.13 (0.950)
	02	03	20.83 (0.820)					28.07 (1.105)
23	01	02	17.78 (0.700)	44.86 (1.766)	52.37 (2.062)	47.22 (1.859)	47.22 (1.859)	25.99 (1.023)
	02	03	24.13 (0.950)					32.00 (1.260)
25	01	02	19.30 (0.760)	48.03 (1.891)	53.98 (2.125)	48.74 (1.919)	48.74 (1.919)	27.18 (1.070)
	02	03	25.65 (1.010)					33.53 (1.320)



M85049/85



M85049/88



M85049/87 & M85049/90

## How to order

SAE-85049 designation - Backshell for LJT (MIL-DTL-38999 Series I / HE308) or TV/CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	M85049/	85	09	W	02
Type of backshell					
LJT/HE308:					
85: straight					
87: 90° right angle					
TV:					
88: straight					
90: 90° right angle					
Size of backshell					
08-10-12-14-16-18-20-22-24 for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors: remove 1 to your connector size					
09-11-13-15-17-19-21-23-25 (same as connector size) for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors					
Finish					
W: olive-drab cadmium plating					
N: electroless nickel plating ✓					
Entry size 01-02-03					
Refer above - dimension B					

✓ : RoHS compliant

# CONNECTORS WITH INTEGRATED BACKSHELLS

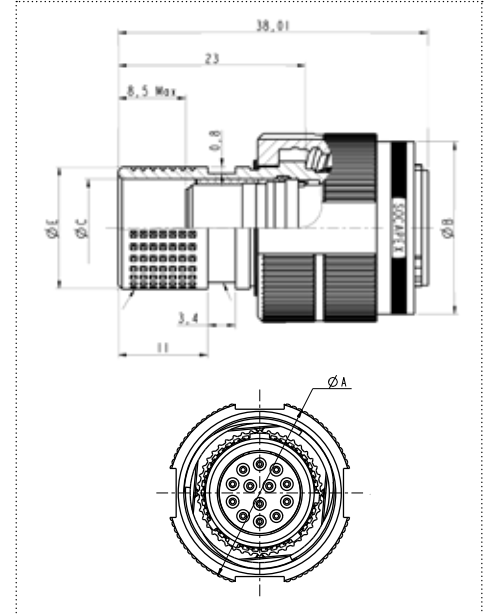
Available on plugs and receptacles, these 2 in 1 connectors/band backsHELLS provide a high EMI protection with a quick, easy and cost effective cabling process. They are low profile, with enhance sealing level and allow the use of macro and micro bands, as well as straight or right angled heat shrink moulded pieces. The design of the shells make them compatible with over moulding process.



## Integrated backsHELLS FOR TV

Suitable for TV (MIL-DTL-38999 Series III) connectors.

Size	Ø A max mm (in)	Ø B max <sup>+0.2</sup> <sub>0</sub> mm (in)	Ø C mm (in)	Ø E max <sup>0</sup> <sub>-0.2</sub> mm (in)
09	21.8 (0.858)	18.4 (0.724)	8.74 (0.344)	12 (0.472)
11	25.0 (0.984)	21.1 (0.831)	11.99 (0.472)	15 (0.591)
13	29.4 (1.157)	25.4 (1.000)	14.88 (0.586)	18 (0.709)
15	32.5 (1.280)	28.7 (1.130)	18.06 (0.711)	22 (0.866)
17	35.7 (1.406)	32.2 (1.268)	21.23 (0.836)	25 (0.984)
19	38.5 (1.516)	34.9 (1.374)	23.93 (0.942)	28 (1.102)
21	41.7 (1.642)	38.1 (1.500)	27.10 (1.067)	31 (1.220)
23	44.9 (1.768)	41.1 (1.618)	30.28 (1.192)	34 (1.339)
25	48.0 (1.890)	44.3 (1.744)	33.45 (1.317)	37 (1.457)



## How to order

### Amphenol designation - Integrated backshell for TV (MIL-DTL-38999 Series III)

Series	TV	06	RW	11-35	P	A	F472
<b>Shell type</b>							
straight plug: 175°C: <b>06</b>							
straight plug: 200°C: <b>S06</b>							
<b>Shell material and finish</b>							
<u>Aluminium</u>							
<b>RW:</b> olive drab cadmium plated 175°C							
<b>RF:</b> electroless nickel plated 200°C ✓							
<b>ZN:</b> black zinc nickel plated 175°C ✓							
<b>RZ:</b> green zinc cobalt plated 175°C ✓							
<i>Please consult for bronze and stainless steel versions</i>							
<b>Shell size and contact arrangement</b>							
See MIL-DTL 38999 Series III catalogue pages 8 to 11							
<b>Contact type</b>							
<b>P:</b> pin							
<b>S:</b> socket							
<b>Polarisation</b>							
blank for normal or A, B, C, D, E							
<b>Deviation</b>							
<b>F472:</b> connectors with integrated backshell							

✓: RoHS compliant

Please consult us for receptacles with integrated backshell



## CONNECTORS WITH INTEGRATED BACKSHELLS

### Description

#### MIL-DTL-38999 Series I & III Connectors with INTEGRATED BACKSHELL

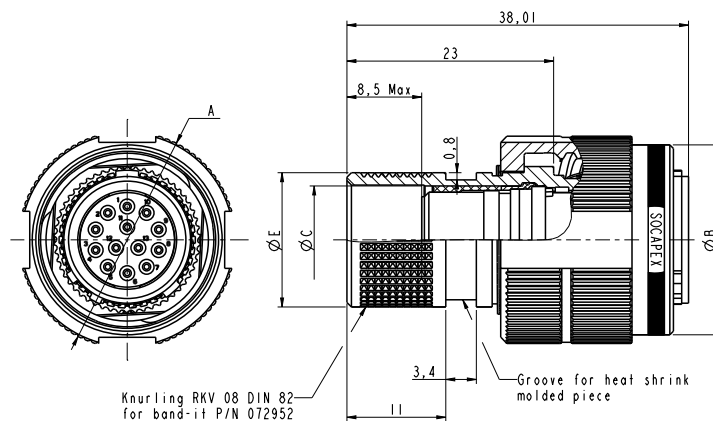
Available on plugs and receptacles, these 2 in 1 connectors/band backshells provide a high EMI protection with a quick, easy and cost effective cabling process. They are low profile, with enhance sealing level and allow the use of macro and micro bands, as well as straight or right angled heat shrink molded pieces. The design of the shells make them compatible with over molding process.

### Main Features

- Suitable for MIL-DTL-38999 Series III and Series I connectors
- Available on plugs and receptacles
- All in one product : time saving during order and installation
- Total length saving : average -47% vs standard plug with TV35 backshell
- Average -50% lighter vs standard plug with TV35 backshell
- High EMI protection
- Braid clamping (metal Band-it)
- Available materials/plating:
  - Aluminum (olive drab cadmium / electroless nickel / black zinc nickel)
  - Bronze
  - Stainless steel

### TV

#### Plug TV 06 F472

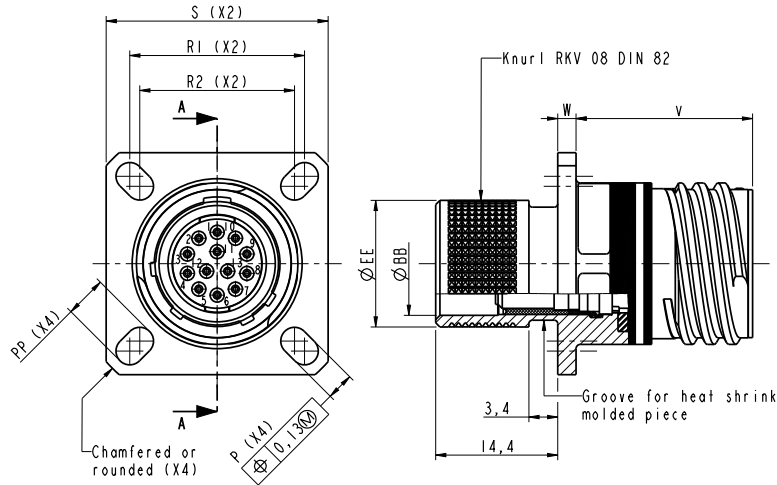


Size	ØA Max	ØE 0 -0.2	ØB +0.2 0	ØC
09	21,8	12	18,4	8,74
11	25,0	15	21,1	11,99
13	29,4	18	25,4	14,88
15	32,5	22	28,7	18,06
17	35,7	25	32,2	21,23
19	38,5	28	34,9	23,93
21	41,7	31	38,1	27,1
23	44,9	34	41,1	30,28
25	48,0	37	44,3	33,45

# CONNECTORS WITH INTEGRATED BACKSHELLS

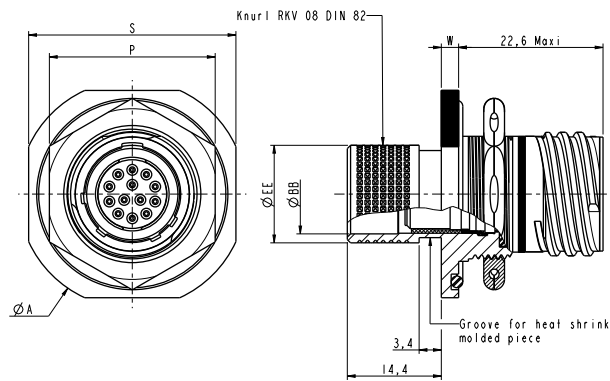
TV

## Square Flange Receptacle TVP 00 F472



Size	S ± 0,3	R1	R2	PP ± 0,2	P ± 0,2	ØEE Max	ØBB	V <sup>0</sup> <sub>-1,25</sub>	W
09	23,8	18,26	15,09	5,49		12	9,0		
11	26,2	20,62	18,26			15	12,2		
13	28,6	23,01	20,62	4,93		18	15,1	20,83	2,1 - 2,5
15	31,0	24,61	23,01	4,39	3,25	22	18,3		
17	33,3	26,97	24,61			25	21,5		
19	36,5	29,36	26,97	4,93		28	24,2		
21	39,7	31,75	29,36			31	27,3		
23	42,9	34,93	31,75		3,91	34	30,5	20,07	2,1 - 3,2
25	46,0	38,10	34,93	6,15		37	33,7		

## Jam Nut Receptacle TV 07 F472

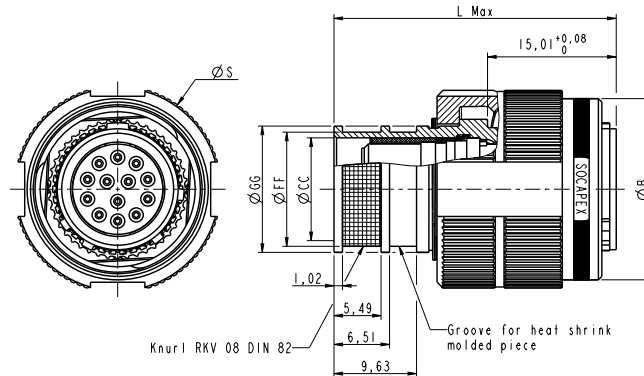


Size	S ± 0,4	ØA ± 0,3	ØBB	ØEE Max	P ± 0,4	W <sup>+0,9</sup> <sub>-0,1</sub>
09	27,0	30,2	9,0	12,0	22,2	
11	31,8	34,9	12,2	15,0	25,4	
13	34,9	38,1	15,1	18,0	30,2	2,2
15	38,1	41,3	18,3	22,0	33,3	
17	41,3	44,5	21,5	25,0	36,5	
19	46,0	49,2	24,2	28,0	39,7	
21	49,2	52,4	27,3	31,0	42,9	
23	52,4	55,6	30,5	34,0	46,0	3,0
25	55,6	58,7	33,7	37,0	50,8	

# CONNECTORS WITH INTEGRATED BACKSHELLS

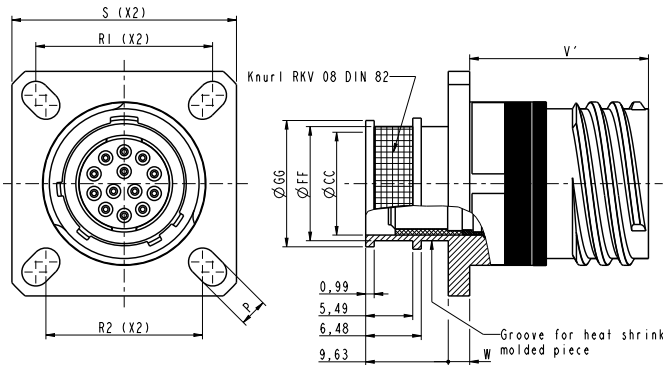
## TV

### Plug TV 06 F472A



Size	Ø S Max	Ø B <sup>+0,2</sup> / <sub>0</sub>	Ø CC	Ø FF <sup>+0,13</sup> / <sub>0</sub>	Ø GG <sup>0</sup> / <sub>-0,2</sub>	L Max
09	21,8	18,4	8,74	10,57	12	
11	25	21,1	11,99	13,26	15	32,95
13	29,4	25,4	14,88	16,56	18	
15	32,5	28,7	18,06	20,57	22	33,1
17	35,7	32,2	21,23	23,57	25	
19	38,5	34,9	23,93	26,57	28	33,25
21	41,7	38,1	27,1	29,57	31	
23	44,9	41,1	30,28	32,56	34	33,41
25	48	44,3	33,45	35,56	37	

### Square Flange Receptacle TVP 00 F472A

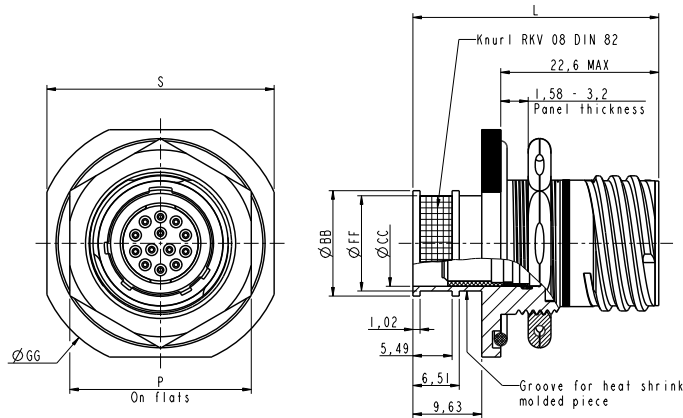


Size	S ± 0,3	Ø CC	Ø FF <sup>+0,13</sup> / <sub>0</sub>	Ø GG <sup>+0,08</sup> / <sub>-0,05</sub>	P ± 0,2	R1	R2	V' Max	W Max
09	23,8	8,74	10,57	11,99		18,26	15,09		
11	26,2	11,99	13,31	14,73		20,62	18,26		
13	28,6	14,88	16,56	17,98		23,01	20,62		
15	31	18,06	20,57	22	3,25	24,61	23,01	20,9	2,5
17	33,3	21,23	23,57	24,99		26,97	24,61		
19	36,5	23,93	26,57	27,99		29,36	26,97		
21	39,7	27,1	29,57	30,99		31,75	29,36		
23	42,9	30,28	32,56	33,99		34,93	31,75	20,1	3,2
25	46	33,45	35,56	36,98	3,91	38,1	34,93		

# CONNECTORS WITH INTEGRATED BACKSHELLS

## TV

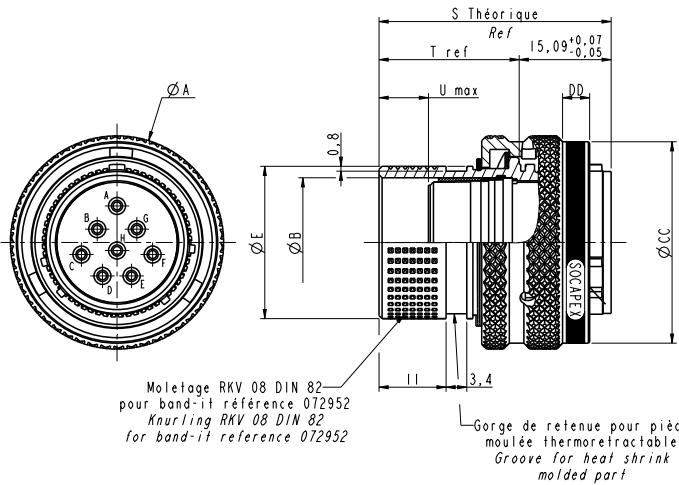
### Jam Nut Receptacle TV 07 F472A



Size	S ± 0,4	GG ± 0,3	Ø CC	Ø FF <sup>+0,13</sup> <sub>0</sub>	Ø BB <sup>+0,08</sup> <sub>-0,05</sub>	L Max	P ± 0,4
09	27	30,2	8,74	10,57	11,99	34,64	22,2
11	31,8	34,9	11,99	13,31	14,73		25,4
13	34,9	38,1	14,88	16,56	17,98		30,2
15	38,1	41,3	18,06	20,57	22	34,81	33,3
17	41,3	44,5	21,23	23,57	24,99		36,5
19	46	49,2	23,93	26,57	27,99		39,7
21	49,2	52,4	27,1	29,57	30,99	35,63	42,9
23	52,4	55,6	30,28	32,56	33,99		46
25	55,6	58,7	33,45	35,56	36,98		50,8

## LJT

### Plug LJT 06 F472

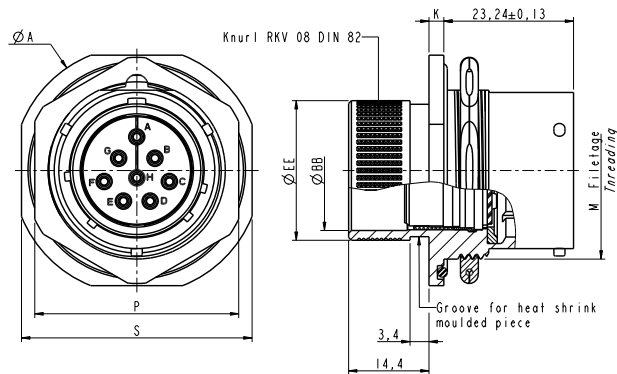


Size	Ø A Max	Ø B	Ø CC <sup>+0,28</sup> <sub>0</sub>	Ø DD <sup>+1,14</sup> <sub>-0,91</sub>	Ø E <sup>0</sup> <sub>-0,2</sub>	S	T ref	U Max
09	21,82	8,74	19,81	4,06	12	38,09	23	8,5
11	24,99	11,99	22,99		15			
13	29,36	14,88	26,95		18			
15	32,54	18,06	30,12		22			
17	35,71	21,23	33,05		25			
19	38,51	23,93	36,12		26,95			
21	41,68	27,1	39,22		30,12			
23	43,86	30,28	42,34		33,3			
25	48,03	33,45	45,54		36,47			

## CONNECTORS WITH INTEGRATED BACKSHELLS

LJT

## Jam Nut Receptacle LJT 07 F472



Size	S ± 0,41	ØA ± 0,41	Ø K <sup>+0,28 -0,25</sup>	P ± 0,43	Ø BB	Ø EE Max	Threading Class 2A UNEF
09	26,97	30,18	2,77	22,23	9	12	.6875-24
11	31,75	34,93		25,4	12,2	15	.8125-20
13	34,93	38,1		30,18	15,1	18	1.0000-20
15	38,1	41,28		33,32	18,3	22	1.1250-18
17	41,28	44,45		36,53	21,5	25	1.2500-18
19	46,02	49,23	3,56	39,67	24,2	28	1.3750-18
21	49,23	52,37		42,88	27,3	31	1.5000-18
23	52,37	55,58		46,02	30,5	34	1.6250-18
25	55,58	58,72		50,8	33,7	37	1.7500-18



# ADAPTERS FOR HEAT SHRINK MOULDED PIECES

## NSD backshells

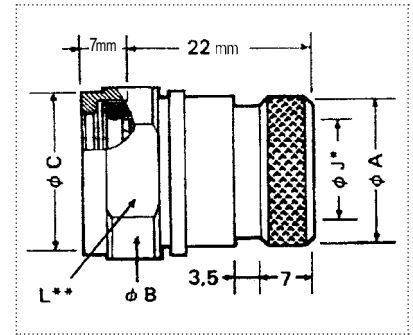


**LJT NSD (HE308-14)** suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.

**TVNSD** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors. These backshells ensure the sealing and the mechanical retention of the cable. For straight and right angled heat shrink moulded pieces, please refer to page 29.

Size	Ø A mm (in)	Ø B <sup>±0.2</sup> mm (in)	Ø C max mm (in)	Ø J* min mm (in)	L** max mm (in)
9	12.60 (0.496)	20.00 (0.787)	16.00 (0.630)	7.80 (0.307)	16.80 (0.661)
11	16.40 (0.646)	23.00 (0.906)	19.00 (0.748)	10.80 (0.425)	20.80 (0.819)
13	20.00 (0.787)	26.00 (1.024)	22.00 (0.866)	13.10 (0.516)	22.80 (0.898)
15	22.00 (0.866)	29.00 (1.142)	25.10 (0.988)	16.30 (0.642)	25.80 (1.016)
17	24.60 (0.969)	32.00 (1.260)	28.30 (1.114)	19.00 (0.748)	28.80 (1.134)
19	27.50 (1.083)	35.00 (1.378)	31.30 (1.232)	21.70 (0.854)	31.80 (1.252)
21	31.90 (1.256)	39.00 (1.536)	34.50 (1.358)	24.90 (0.980)	35.80 (1.409)
23	35.00 (1.378)	42.00 (1.654)	37.70 (1.484)	28.10 (1.106)	38.80 (1.528)
25	38.80 (1.528)	45.00 (1.772)	40.80 (1.606)	31.20 (1.228)	41.80 (1.646)

\* max permissible cable outside diameter  
\*\* dimension over the flats (4 flats)



## How to order

**Amphenol designation - Backshell for LJT (MIL-DTL-38999 Series I/HE308), RNJ (HE308) connectors**

**HE 308 military designation - Backshells for HE308 (LJT / MIL-DTL-38999 Series I / RNJ) connectors**

Series	LJT	NSD	11	014
<b>Type of backshell</b>	NSD: backshell for heat shrink moulded piece			
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)			
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating ✓ 033K: black zinc nickel plating ✓			

Series	HE308	14	15	7	M
<b>Type of backshell</b>	NSD: backshell for heat shrink moulded piece				
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)				
<b>Finish</b>	07: olive-drab cadmium plating 06: electroless nickel plating ✓				
<b>Military standard</b>					

**Amphenol designation - Backshell for TV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors**

Series	TV	NSD	11	014
<b>Type of backshell</b>	NSD: backshell for heat shrink moulded piece			
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)			
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating ✓ 033K: black zinc nickel plating ✓			

✓: RoHS compliant

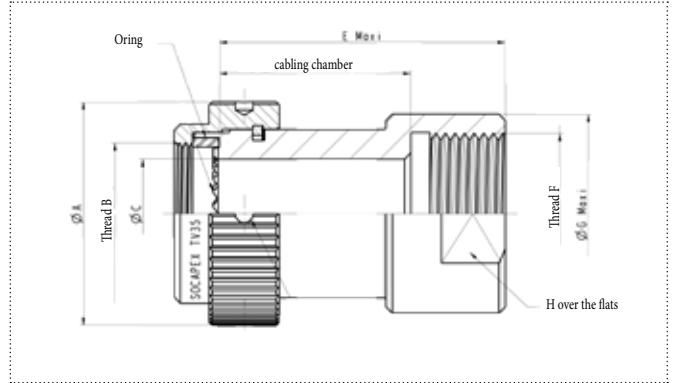
# ADAPTERS FOR SEALING GLAND

## Metric sealing gland straight version



**TV35M** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors. These backshells ensure the adaptation on metric sealing gland.

Rear side	M16	M20	M25	M32	M40	M50
<b>F Thread metric</b>	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M40x1.5	M50x1.5
<b>Ø G mm (in)</b>	19.6 (0.772)	25.3 (0.996)	31.1 (1.224)	39.1 (1.539)	49.5 (1.949)	63.3 (2.492)
<b>H mm (in)</b>	18 (0.709)	22 (0.866)	27 (1.063)	34 (1.339)	43 (1.693)	55 (2.165)



Size	Ø A mm (in)	B Thread metric	Ø C mm (in)	Cabling chamber					Rear side (Thread)								
				30	40	50	60	80	M16	M20	M25	M32	M40	M50			
				E mm (in)													
09	24.3 (0.957)	M12x1	7.71 (0.304)														
11	27.4 (1.079)	M15x1	10.96 (0.431)														
13	31.8 (1.252)	M18x1	13.85 (0.545)														
15	35 (1.378)	M22x1	17.03 (0.670)														
17	38.1 (1.500)	M25x1	20.20 (0.795)	45 (1.772)	55 (2.165)	65 (2.56)	75 (2.953)	95 (3.740)									
19	41.2 (1.622)	M28x1	22.90 (0.902)														
21	44.3 (1.744)	M31x1	26.07 (1.026)														
23	47.2 (1.858)	M34x1	29.25 (1.152)														
25	50 (1.969)	M37x1	32.42 (1.276)														

For other configurations, please consult us

## How to order

### Amphenol designation - Backshell for TV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

<b>Series</b>	TV	35	15	30	M20	023
<b>35:</b> aluminum						
<b>B35:</b> bronze ✓						
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)					
<b>Cabling chamber</b>	30-40-50-60-80					
	Refer above					
<b>Rear side</b>	M16-M20-M25-M32-M40-M50					
	Refer above					
<b>Finish</b>						
<b>014:</b> olive-drab cadmium plating						
<b>023:</b> electroless nickel plating ✓						
<b>033K:</b> black zinc nickel plating ✓						
Blank for bronze version ✓						

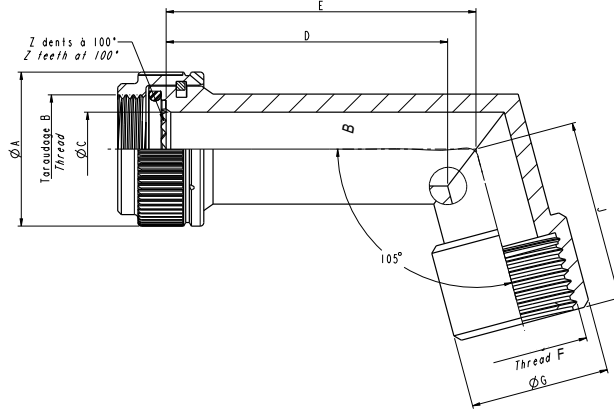
✓ : RoHS compliant

# ADAPTERS FOR SEALING GLAND



## Metric sealing gland 105° angled version

**TV105M** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors. These backshells ensure the adaptation on metric sealing gland.



Rear side	M16	M20	M25	M32	M40	M50	M63
<b>F Thread metric</b>	M16x1.5-6H	M20x1.5-6H	M25x1.5-6H	M32x1.5-6H	M40x1.5-6H	M50x1.5-6H	M63x1.5-6H
<b>Ø G mm (in)</b>	20 (0.787)	24 (0.945)	29 (1.142)	36 (1.417)	44 (1.732)	54 (2.126)	67 (2.638)

Size	Ø A max mm (in)	B Thread metric	Ø C min mm (in)	Cabling chamber D mm (in)	E max mm (in)	J max mm (in)	Rear side (Thread)									
							M16	M20	M25	M32	M40	M50	M63			
11	25.04 (0.986)	M15x1-6H	9.90 (0.390)	35	42.5 (1.673)	35 (1.378)										
13	29.36 (1.156)	M18x1-6H	12.80 (0.504)	40	48.25 (1.900)	35 (1.378)										
15	32.54 (1.281)	M22x1-6H	16.00 (0.630)	50	60.50 (2.382)	35 (1.378)										
17	35.71 (1.406)	M25x1-6H	19.20 (0.756)	55	66.60 (2.622)	36.50 (1.437)										
19	38.51 (1.516)	M28x1-6H	21.40 (0.843)	55	67.80 (2.669)	37 (1.457)										
21	41.68 (1.641)	M31x1-6H	24.60 (0.969)	40	74 (2.913)	38.50 (1.516)										
							60									
23	44.86 (1.766)	M34x1-6H	27.70 (1.091)	60	74.75 (2.943)	40 (1.575)										
25	48.03 (1.891)	M37x1-6H	30.90 (1.217)	75	91.50 (3.602)	40 (1.575)										

For other configurations, please consult us

## How to order

Amphenol designation - Backshell for TV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	TV	105	15	50	M20	023
105: aluminum						
B105: bronze ✓						
Size of backshell	09-11-13-15-17-19-21-23-25 (same as connector size)					
Cabling chamber	35-40-50-55-60-75					
Refer above - dimension D						
Rear side	M16-M20-M25-M32-M40-M50-M63					
Refer above						
Finish						
014: olive-drab cadmium plating						
023: electroless nickel plating ✓						
033K: black zinc nickel plating ✓						
Blank for bronze version ✓						

✓: RoHS compliant

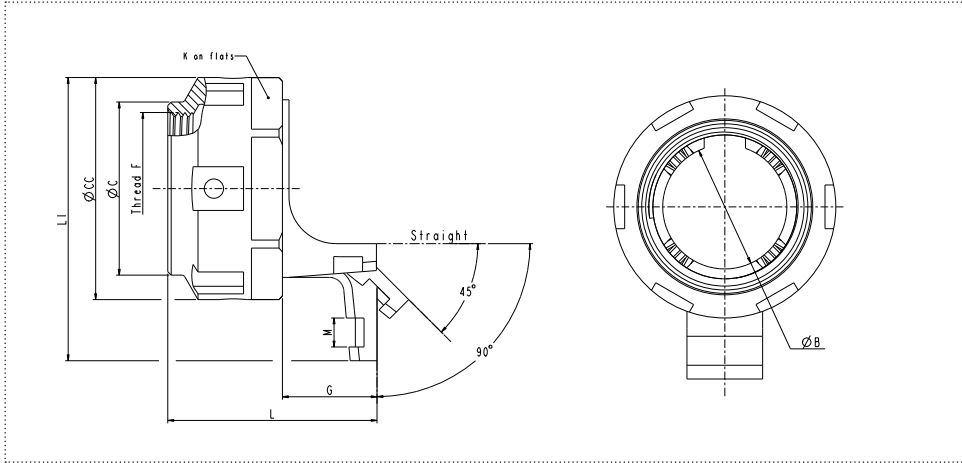
# COMPOSITE BACKSHELLS



## CTV35/ABS2216

**CTV35/ABS2216** suitable for TV/CTV (MIL-DTL-38999 Series III/EN3645) connectors:

- Light weight solution
- Quick and easy installation
- Handling temperature from -65°C to 200°C
- Anti-decoupling system to withstand shocks and vibrations in harsh environment



Size	ØB <sup>0</sup> <sub>-0.1</sub> mm (in)	ØC Max mm (in)	ØCC max mm (in)	Thread F	G max mm (in)			K <sup>0</sup> <sub>-0.2</sub> mm (in)	L max mm (in)			LI Max mm (in)			M <sup>+0.2</sup> mm (in)
					droit	45°	90°		droit	45°	90°	droit	45°	90°	
09	8.47 (0.333)	15.24 (0.600)	21.79 (0.858)	M12x1.0+6H R0.100			17 (0.669)	19.05 (0.750)			40 (1.575)	21.76 (0.858)	26 (1.024)	/	3.2 (0.126)
11	12.07 (0.475)	18.21 (0.717)	24.99 (0.984)	M15x1.0-6H R0.100			15 (0.591)	22.23 (0.875)				24.99 (0.984)	30 (1.181)	40 (1.575)	3.2 (0.126)
13	14.96 (0.714)	21.18 (0.834)	29.39 (1.157)	M18x1.0-6H R0.100			15 (0.591)	25.4 (1.000)				29.39 (1.157)	33 (1.299)	40 (1.575)	4.2 (0.165)
15	18.14 (0.714)	25.14 (0.990)	32.46 (1.279)	M22x1.0-6H R0.100			15 (0.591)	28.58 (1.125)				32.49 (1.279)	36 (1.417)	50 (1.969)	4.2 (0.165)
17	21.21 (0.835)	28.12 (1.107)	35.71 (1.406)	M25x1.0-6H R0.100	16 (0.630)	21 (0.827)	15 (0.591)	31.75 (1.250)	40 (1.575)	37 (1.457)	32.5 (1.280)	35.71 (1.406)	39 (1.535)	50 (1.969)	4.2 (0.165)
19	24 (0.945)	31.09 (1.224)	38.5 (1.516)	M28x1.0-6H R0.100			15 (0.591)	34.93 (1.375)				38.5 (1.516)	42 (1.654)	50 (1.969)	4.2 (0.165)
21	27.08 (1.066)	34.06 (1.341)	41.7 (1.642)	M31x1.0-6H R0.100			15 (0.591)	38.1 (1.500)				41.7 (1.642)	45 (1.772)	60 (2.362)	4.2 (0.165)
23	30.35 (1.195)	36.9 (1.453)	44.91 (1.768)	M34x1.0-6H R0.100			15 (0.591)	41.28 (1.625)				44.91 (1.768)	48 (1.890)	60 (2.362)	5.4 (0.213)

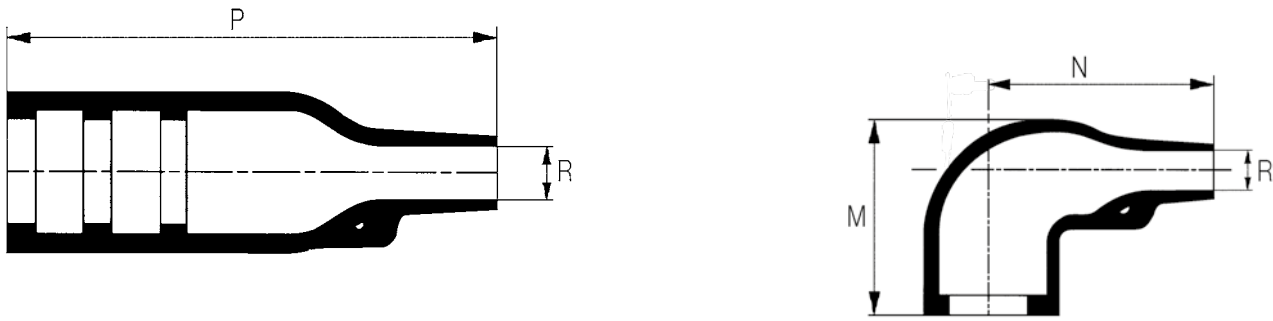
## How to order

Amphenol and ABS designation - Backshells for TV/CTV (MIL-DTL-38999 Series III / EN3645) connectors

Series	ABS2216 or CTV35	A	11	W
Type of backshell				
A: straight backshell				
B: 45° backshell				
C: 90° backshell				
Size of backshell	09-11-13-15-17-19-21-23-25 (same as connector size)			
EMI protection				
W: EMI shielding backshell (delivered with 200 mm metallic braid) ✓				
P: non-EMI shielding backshell ✓				

✓: RoHS compliant

# HEAT-SHRINK MOULDED PIECES



Heat-shrink moulded piece p/n		M max mm (in)	N ±10% mm (in)	P ±10% mm (in)	Ø R mm (in)	
Straight	Right angled				Before heating (max)	After heating (min cable Ø)
			After total heating			
804221	804231	25.40 (1.000)	25.00 (0.984)	38.40 (1.512)	24.00 (0.945)	6.00 (0.236)
804222	804232	27.20 (1.071)	32.00 (1.260)	54.90 (2.161)	30.00 (1.181)	6.00 (0.236)
804223	804233	30.50 (1.201)	39.40 (1.551)	66.80 (2.630)	31.00 (1.220)	7.10 (0.280)
804225	804235	38.00 (1.496)	46.00 (1.811)	80.00 (3.150)	36.00 (1.417)	8.50 (0.335)
804227	804237	45.00 (1.772)	55.00 (2.165)	99.10 (3.902)	43.00 (1.693)	10.00 (0.394)
804229	804239	54.00 (2.126)	80.00 (3.150)	130.00 (5.118)	60.00 (2.362)	16.00 (0.630)

Standard heat-shrink moulded pieces (semi-rigid polyolefin – without any adhesive)

Size	Backshell type	Rear size coding	Straight			Right angled		
			Amphenol Socapex p/n	Raychem p/n	Hellerman p/n	Amphenol Socapex p/n	Raychem p/n	Hellerman p/n
9	NSA, NSD	-	804221	202K121-3	152-42-G	804231	222K121-3	1152-4-G
	HE308-35, TV35, TVB35, SBC	08	804221	202K121-3	152-42-G	804231	222K121-3	1152-4-G
11	NSA, NSD	-	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
	HE308-35, TV35, TVB35, SBC	12	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
13	NSA, NSD	-	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
	HE308-35, TV35, TVB35, SBC	12	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
		16	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
		-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
15	NSA	-	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
	NSD	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
	HE308-35, TV35, TVB35, SBC	14	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
		20	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
17	NSA	-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
	NSD	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
		12	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
	HE308-35, TV35, TVB35, SBC	16	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
		24	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
19	NSA	-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
	NSD	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
	HE308-35, TV35, TVB35, SBC	16	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
		24	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
21	NSA, NSD	-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
		14	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
	HE308-35, TV35, TVB35, SBC	20	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
		28	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
		-	804229	202K174-3	158-43-G	804239	222K174-3	1158-4-G
23	NSA, NSD	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
	HE308-35, TV35, TVB35, SBC	32	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
25	NSA, NSD	-	804229	202K174-3	158-43-G	804239	222K174-3	1158-4-G
	HE308-35, TV35, TVB35, SBC	28	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
		36	804229	202K174-3	158-43-G	804239	222K174-3	1158-4-G

# TORQUES VALUES FOR REAR ACCESSORIES

## According to the SAE-85049 standard

For all series: MIL-DTL-38999 III / EN3645 / TV-CTV / POWERSAFE / RNJLP / MIL-DTL-38999 II / HE308 / LJT / RNJ / MIL-DTL-38999 I / JT / SJT / VG96912

Accessory thread torque value (N.m) $\pm 0.565$		
Series	TV / Metal MIL-DTL-38999 I, II, III / Metal EN3645 / Powersafe / RNJLP / HE308 / LJT / JT / SJT / VG96912	CTV / MIL-DTL-38999 III class M & J / EN3645 class M & J
Shell size	Heavy duty (All metal connectors only)	Metal medium & light duty (Composite connectors only)
08 / 09	8,475	5,650
10 / 11	11,300	5,650
12 / 13	15,820	5,650
14 / 15	16,950	5,650
16 / 17	16,950	5,650
18 / 19	16,950	5,650
20 / 21	19,775	11,300
22 / 23	19,775	11,300
24 / 25	19,775	11,300

## According to the ABS2216 standard

For TV-CTV / MIL-DTL-38999 III / EN3645 connectors	
Shell size	Torque value (N.m)
09	2.75 ( $\pm 0.25$ )
11	2.75 ( $\pm 0.25$ )
13	3 ( $\pm 0.5$ )
15	5 ( $\pm 0.5$ )
17	5 ( $\pm 0.5$ )
19	5 ( $\pm 0.5$ )
21	7 ( $\pm 0.5$ )
23	7 ( $\pm 0.5$ )
25	7 ( $\pm 0.5$ )

The rear accessory installation procedure may change from one equipment manufacturer to another in terms of coupling torques to apply.

The use of Loctite shall be required or excluded.

For Aluminum alloy rear accessory, if the use of Loctite is excluded, the best performance in time of the system « connector + rear accessory » consists in applying the torque value to screw then to unscrew, to apply the torque value to screw a second time, then to unscrew and finally to screw the torque value a third time.

## CROSS REFERENCES

The cross references below are given as information only.  
The designs of the backshells are not strictly equivalent.

Amphenol p/n	NFC UTE 93422 / HE308 p/n	SAE-85049 p/n
LJT NSA xx 014	HE308 13 xx 7M	
LJT NSA xx 023	HE308 13 xx 6M	
LJT NSD xx 014	HE308 14 xx 7M	M85049/62-xx W
LJT NSD xx 023	HE308 14 xx 6M	M85049/62-XX N
LJTSBC xx xx 014		M85049/87-xx W xx
LJTSBC xx xx 023		M85049/87-xx N xx
HE308-35-xx-xx-xx-7M	HE308-35-xx-xx-xx-7M	M85049/85-xx W xx
HE308-35-xx-xx-xx-xx-6M	HE308-35-xx-xx-xx-6M	M85049/85-xx N xx
TV 35 xx xx xx 014		M85049/88-xx W xx
TV 35 xx xx xx 023		M85049/88-xx N xx
TVSBC xx xx 014		M85049/90-xx W xx
TVSBC xx xx 023		M85049/90-xx N xx

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### Europe

FRANCE	Amphenol AIR LB	2 rue Clément Ader, ZAC de Wé - 08110 Carignan	+33 3 24 22 78 49
FRANCE	Amphenol SEFEE	Z.I. des Cazes – BP243 - 12402 Saint-Affrique Cedex	+33 5 65 98 11 00
GERMANY	Amphenol AIR LB GMBH	Am Kleinbahnhof 4 - 66740 Saarlouis	+49 6831 981 00
ITALY	Amphenol EUROPEAN SALES OPERATIONS	Via Barbaiana n.5 - 20020 Lainate - Milano	+39 293 254 214
UNITED KINGDOM	Amphenol INVOTEC	Unit 1-3, Hedging Lane Industrial Estate, Dosthill - Tamworth, B77 5HH	+44 1827 263 000
UNITED KINGDOM	Amphenol IONIX SYSTEMS	Prospect House, Taylor Business Park, Risley, Warrington, WA3 6HP	+44 1 942 685 200
UNITED KINGDOM	Amphenol LTD	Thanet Way, Whitstable - KENT, CT53JF	+44 1227 773 200
UNITED KINGDOM	Amphenol MARTEC	St Augustines Business Park, Swalecliffe Whitstable - Kent CT5 2QJ	+44 1227 793 733

### North America

CANADA	Amphenol CANADA	605 Milner avenue - Toronto, Ontario	+1 416 291 0647
USA	Amphenol AEROSPACE OPERATIONS	40-60 Delaware street - Sidney, NY 13838	+1 800 678 0141
USA	Amphenol BORISH TECHNOLOGIES	4511 East Paris AVE - Grand Rapids, MI 49512	+1 616 554 9820
USA	Amphenol FSI	1300 Central Expwy N, Suite 100 - Allen, TX 75013	+1 214 547 2400
USA	Amphenol GRIFFITH ENTERPRISES	6000 East Coury Drive - Cottonwood, AZ 86326	+1 928 634 3685
USA	Amphenol NEXUS TECHNOLOGIES	50 Sunnyside Avenue - Stamford, CT 06902	+1 203 327 7300
USA	Amphenol PCD	72 Cherry Hill Drive - Beverly, MA. 01915	+1 978 624 3400
USA	Amphenol PRINTED CIRCUIT	Board Technology, 91 Northeastern Boulevard - Nashua, NH 03062	+1 603 324 4500
USA	Amphenol SV MICROWAVE	2400 Centrepark West Drive - West Palm Beach, FL	+1 561 840 1800
USA	Amphenol TIMES MICROWAVE	358 Hall Avenue - Wallingford, CT 06492	+1 800 867 2629

### Asia

CHINA	Amphenol PCD CO.	Building 21, 1 <sup>st</sup> Liao Keng Industrial Zone, Shi Yan Street - Bao An District - Shenzhen 518108	+86 755 8173 8000/8286
INDIA	Amphenol INTERCONNECT INDIA	105 Bhosari Industrial Area - Pune 411 026	+91 20 27120363
JAPAN	Amphenol JAPAN	471-1, Deba, Ritto-City - Shiga 520 3041	+81 77 553 8501
KOREA	Amphenol DAESHIN	558 SongNae-Dong SoSa-Gu, Bucheon-city, Kyunggi-Do - 420-130	+81 32 610 3830/3845
SINGAPORE	Amphenol EAST ASIA	26/F, Railway Plaza, 39 Chatham Road South, Tsim Sha Tsui, Kowloon, Hong Kong	+65 6294 2128

### Other Areas

AFRICA	Amphenol AFRICA	30 Impala Rd - Sandton 2146	+27 82 410 5179
ARGENTINA	Amphenol ARGENTINA	Av. Callao 930 2do piso Oficina B "Plaza" C1023 - AAP Buenos Aires	+54 11 4815 6886
AUSTRALIA	Amphenol AUSTRALIA PTY	2 Fiveways Blvd., Keysborough - Melbourne - Victoria 3173	+61 3 8796 8888
BRAZIL	Amphenol DO BRAZIL	Rua Diogo Moreira, 132, 20 andar, rooms 2001-2-3	+55 11 3815 1003
ISRAEL	Amphenol BAR-TEC	3 Hagavish Street, K fir-Barkan Bldg. East Industrial Zone - Kfar-Sava, 44102	+972 9 764 4100
MEXICO	Amphenol OPTIMIZE	Carretera Internacional Km 6.5, Col. Parque Industrial, Nogales, Sonora, C.P. 84094	+52 631 311 160
NEW ZEALAND	Amphenol PHITEK	Level 4, 2 Kingdon Street, Newmarket, Auckland 1023	+64 9 524 2984
RUSSIA	Amphenol RUSSIA	Yaroslavskaia Street 8 - 129164 Moscow	+7 495 937 6341
TURKEY	Amphenol TURKEY	Sun Plaza 15 Kat: 15 Maslak Hah. Bilim Sok. No.5 - Sisli/Istanbul, 34398	+90 212 367 92 19

# Amphenol SOCAPEX



## Amphenol Socapex

948, promenade de l'Arve BP29  
74311 Thyez Cedex - France  
Phone: +33 (0)4 50 89 28 00  
[contact@amphenol-socapex.fr](mailto:contact@amphenol-socapex.fr)  
[www.amphenol-socapex.com](http://www.amphenol-socapex.com)



## For Technical Support

+33 (0)4 50 89 28 49  
[technicalsupport@amphenol-socapex.fr](mailto:technicalsupport@amphenol-socapex.fr)  
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